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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,095

09/18/2003

Chiihsin Kao

8834.0038

8763

22852

7590

10/22/2004

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
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EXAMINER

BOCURE, TESFALDET

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/668,095	Applicant(s) KAO ET AL.	
	Examiner Tesfaldet Bocure	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-100 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The status of related US patent application serial numbers 08/991,444, 08/991,449, 08/991,453 and 08/881998 disclosed under the title "cross reference to related application" should be updated by the corresponding patent number and issue date. The same is true with the parent application serial number 09/510,578.

Claim Objections

2. Claims 20-38,48,49,59 -67and 88-98 are objected to because of the following informalities: The claimed "measured, obtained and stored signal to-noise ratio" respectively in claims 20,49,59 and 88 should be recited as used by the detector for detecting data capacity.

Claims 21-38, 60-77 and 89-96 are inherently objected as being dependent on the objected base claims.

The term used "the order" in claim 48 is claimed in claim 47 for the first time, therefore the dependency of claim should be amended from claim 44 to---claim 47--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 49,50,54-58, 88,89,90-96,97 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow et al.** (US patent number 5,479,447, newly cited). **Chow et al. (Chow hereinafter)** teaches an adaptive bit and power allocating in a multi-carrier transmission system (figs 13 and 14) comprising: measuring the signal to noise ratio of the multi-carriers (see computing SNR in figs 9 and 10); determining the load capacity and power modification according to the maximum and minimum power level of each subcarrier and according to computed SNR (see computation of Bmax and Ej in fig. 9 and starting col. 7, line 1 through col. 12, line 10) as in claims 49,57,88,97 and 99.

What **Chow** fails to teach is that the total bit rate is detected according to the detected load capacity and power modification factors. However, since bit rate is defined as the number of bit per given time to be transmitted and the system of **Chow** transmits a maximum allowable number of bit, it would have been obvious to one of an

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ordinary skill in the art to modify the system of **Chow** to calculate the total number of bits (bit rate) using the number of bits allocated in the multi-carriers at the time the invention was made.

Chow teaches the maximum number of bit and energy value (claimed power) are assigned to the multi-carrier transmission system according to the maximum performance margin (see col. 9), however he is silent in verifying the outcome as in claims 50 and 89. Therefore, using the performance margin and gain coding as a margin to calculate the bit loading and energy loading it would have been obvious to one of an ordinary skill in the art to verify that the bit and energy loading are achievable once it reaches the performance level at the time the invention was made.

Further to claims 54,55,56,58 and 94-96, Chow also teaches that:

The energy level (claimed power factor) to be modified is a function of the computed SNR, load capacity and sub-carriers having non zero capacity (see water-pouring graph in fig. 7 and the steps for calculating in cols 9-10) as in claims 54 and 94;

The bit loading algorithm in the system of Chow uses the steps of calculating the maximum number of bits within acceptable throughput (see fig. 9 and col. 7, lines 35-68) as in claims 55,56 and 95; and

the best carriers are selected according the maximum performance margin, therefore reads on the claimed enabling subcarriers in claims 58 and 96 (see col. 9, lines 30-59).

Reissue Applications

6. Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 6,292,515 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

7. The reissue oath/declaration filed with this application is defective because it fails to contain the statement required under 37 CFR 1.175(a)(1) as to applicant's belief that the original patent is wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and see MPEP § 1414.

8. The reissue oath/declaration filed with this application is defective because it fails to identify at least one error, which is relied upon to support the reissue application. See 37 CFR 1.175(a)(1) and MPEP § 1414.

9. The reissue oath/declaration filed with this application is defective because it fails to contain a statement that all errors, which are being corrected in the reissue application up to the time of filing of the oath/declaration, arose without any deceptive intention on the part of the applicant. See 37 CFR 1.175 and MPEP § 1414.

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10. Claims 1-100 are rejected as being based upon a defective reissue oath under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the oath is set forth in the discussion above in this Office action.

11. The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

12. For each new claim added to the reissue by the amendment being submitted (the current amendment), the entire text of the added claim must be presented completely underlined. See 37 CFR 1.173(b)(2).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent numbers 4,535,472, 4,731,816, 5,852,633, 5,903,608, 6,064,692, 6,075,821, 6,084,917, 6,084,906, 6,094,459, 6,128,348, 6,259,746, 6,275,522 and 6,285,708 respectively issued to Levin et al., Chun, Chow, Kao et al., Kao et al., Kao et al., Kao et al., Levin et al., Johnson et al. and Shively et al. disclose a modem having means for adaptively allocating bit into the subcarriers.

14. European patent application number EP0905948 issued to Kechriotis and WO9857472 issued to Levin disclose an adaptive bit allocation in DSL.

15. Publications issued to:

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Rubet Baines, "ADSL Community Faces Line Code Challenge," Electronic News, May 5, 1997, p48;

Pini Losowick, "VDSL Gains As Technology Barriers Fall," Electronic News, May 5, 1997, p52;

Stefan Knight, "ADSL On Fast Track To Revolutionize Work World," Electronic News, May 5, 1997, p, 43 and 46;

Uwe Hering, "Market to Support Several Implementations of xDSL," Electronic News, May 5, 1997, pp 56 and 73;

Peter S. Chow et al., "A Practical Discrete Transceiver Loading Algorithm for Data Transmission over Spectrally Shaped Channel," IEEE Transactions on Communications, Vol. 43, No.2/3/4, Feb/Mar/Apr. 1995, pp 773-775;

Wong et al., "Multiuser OFDM with Adaptive Subcarrier, Bit, and Power Allocation," IEEE Journal on Selected Area in Communications, Vol., 17, No. 10, October 1999; and

Peter Kraniuskas, "A Plain Man's Guide to the FFT," IEEE signal Processing Magazine, Apr. 1994, pp 24-35 respectively disclose a DSL having an adaptive bit allocating.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure
Primary Examiner
Art Unit 2631

